

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	SUPPLEMENTAL PLAN - TITLE SHEET
2	SUPPLEMENTAL PLAN - TOPOGRAPHY, SOILS, STORMWATER MANAGEMENT, LANDSCAPE & FOREST CONSERVATION
3	SUPPLEMENTAL PLAN - TOPOGRAPHY, SOILS, STORMWATER MANAGEMENT, LANDSCAPE & FOREST CONSERVATION
4	DETAILS
5	SEDMENT & EROSION CONTROL NOTES & DETAILS

NO.	REVISION	DATE
1	REVISED GAS LINE EASE, FGE, CONVEYER AND FLOODPLAIN SHT. 2&3	3/12/20

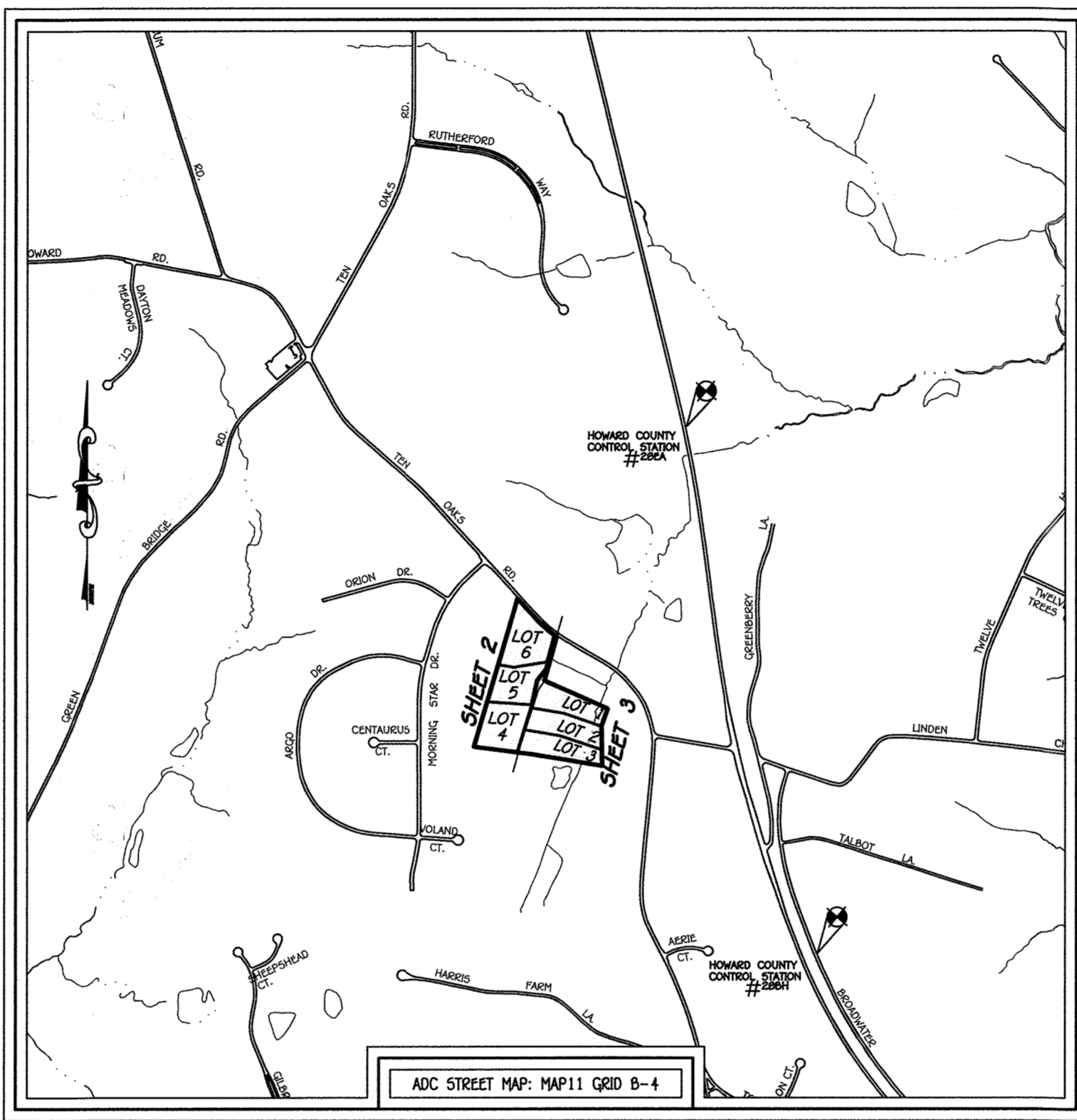
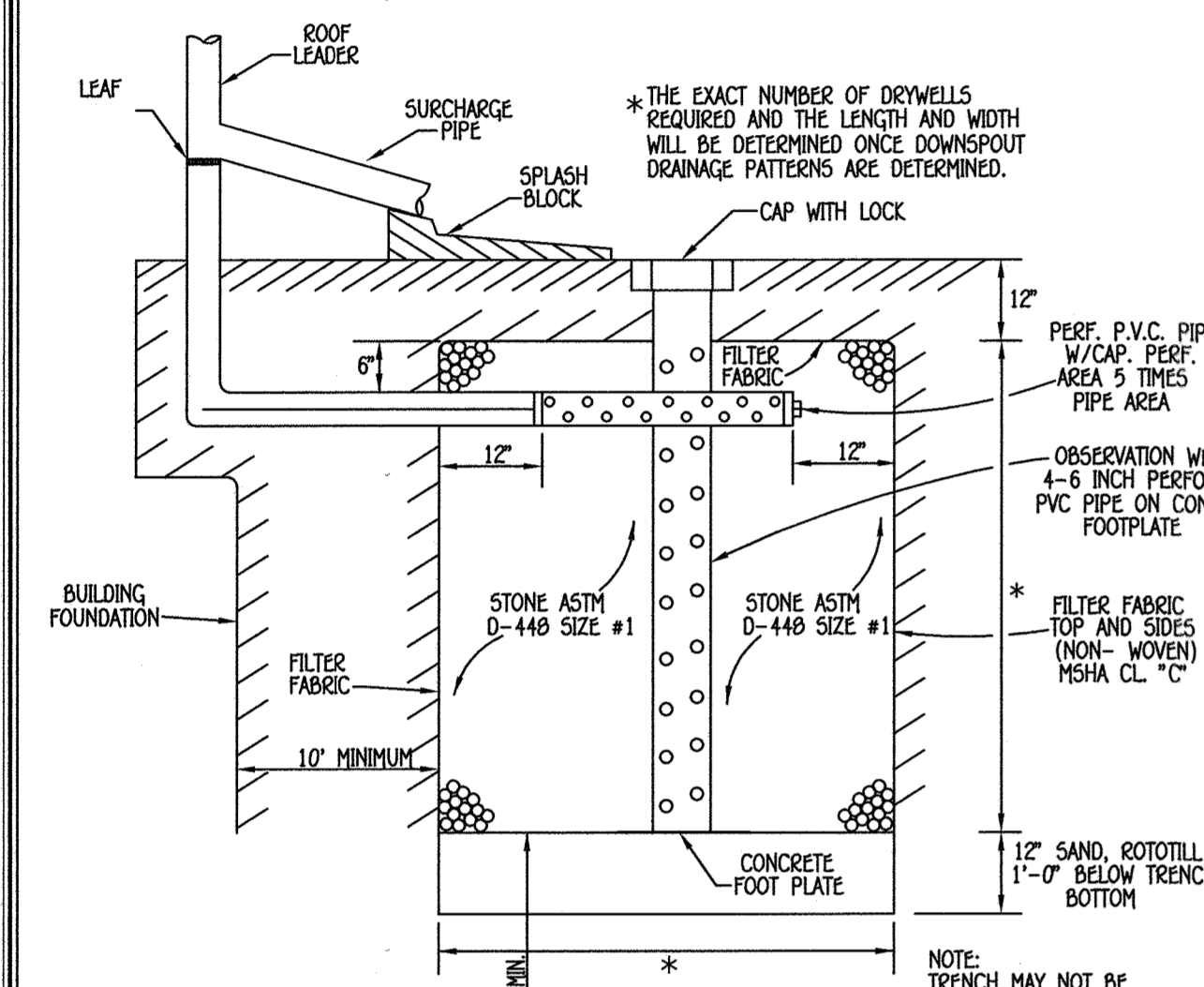
SUPPLEMENTAL PLAN TEN OAKS FARM LOTS 1 THRU 6

TAX MAP No. 28 GRID No. 14 PARCEL Nos. 140
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SOIL	NAME	CLASS	Lw FACTOR
BBA	Baile silt loam, 0 to 3 percent slopes	D	0.37
GgB	Glenniel loam, 3 to 8 percent slopes	B	0.28
GgC	Glenniel loam, 8 to 15 percent slopes	B	0.28
GmB	Glenniel silt loam, 3 to 8 percent slopes	C	0.43
M8D	Manor loam, 15 to 25 percent slopes	B	0.28

LEGEND

- EXISTING 2' CONTOURS
- EXISTING 10' CONTOURS
- EXISTING TREE LINE
- SOIL LINES AND TYPES
- DENOTES PROPOSED WELL
- DENOTES FAILED PERC
- DENOTES PASSED PERC
- DENOTES PROPOSED SEPTIC EASEMENT
- DENOTES EXISTING SEPTIC EASEMENTS
- DENOTES 15% TO 25% SLOPES
- DENOTES 1500 SQ.FT. ALTERNATE WELL SITE
- DENOTES EXISTING PERCS FROM 5/6/92
- DENOTES PUBLIC 100 YEAR FLOODPLAIN, DRAINAGE & UTILITY EASEMENT



SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF THIS SUBMISSION = 20.12 AC.
- B. LIMIT OF DISTURBED AREA = 203,459 SQ. FT. OR 4.67 AC. (SWM BASED ON LOD)
- C. PRESENT ZONING DESIGNATION = RR-DEO (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- D. PROPOSED USE: RESIDENTIAL
- E. PREVIOUS HOWARD COUNTY FILES: ECP-16-013; WP-16-108
- F. TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 1.76 AC
- G. TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.16 AC (15% TO 25% SLOPES)
- H. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 5.76 AC
- I. TOTAL AREA OF STREAM (INCLUDING BUFFER) = 2.64 AC
- J. TOTAL AREA OF EXISTING FOREST = 0.95 AC. (EXCLUDING FLOODPLAIN)
- K. TOTAL AREA OF FOREST TO BE RETAINED = 0.95 AC (FOREST CONSERVATION REGULATIONS, WILL BE MET BY AFFORESTATION, SINCE MINIMAL FOREST EXISTS ON-SITE OUTSIDE OF THE FLOODPLAIN)
- L. TOTAL AREA OF LOTS / BUILDABLE PARCELS = 20.12 AC
- M. TOTAL GREEN OPEN AREA = 19.04 AC (WITHIN LOD)
- N. TOTAL IMPERVIOUS AREA = 1.08 AC (WITHIN LOD, EXCLUDES EXISTING IMPERVIOUS)
- O. TOTAL AREA OF ERODIBLE SOILS = 0.16 AC
- P. TOTAL AREA OF ROAD DEDICATION = 0.16 AC

BENCHMARK INFORMATION

B.M.# 28EA - HOWARD COUNTY CONTROL STATION #28EA - HORIZONTAL - (NAD '83)
N 572,158.967
E 1,319,400.744
ELEVATION = 484.995 - VERTICAL - (NAVD '88)

B.M.# 28HB - HOWARD COUNTY CONTROL STATION #28HB - HORIZONTAL - (NAD '83)
N 567,548.744
E 1,320,551.726
ELEVATION = 556.080 - VERTICAL - (NAVD '88)

DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L	W	D
LOT 3 (FRONT LT)	875 SQ. FT.	91 C.F.	162 C.F.	100%	9'	9'	5'
LOT 3 (FRONT RT)	875 SQ. FT.	91 C.F.	162 C.F.	100%	9'	9'	5'
LOT 5 (FRONT LT)	875 SQ. FT.	91 C.F.	162 C.F.	100%	9'	9'	5'
LOT 5 (FRONT RT)	875 SQ. FT.	91 C.F.	162 C.F.	100%	9'	9'	5'
LOT 5 (REAR LT)	875 SQ. FT.	91 C.F.	162 C.F.	100%	9'	9'	5'
LOT 5 (REAR RT)	875 SQ. FT.	91 C.F.	162 C.F.	100%	9'	9'	5'

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

Table B.4. Materials Specifications for Micro-Bioretenction, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40%	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)	n/a	
Mulch	shredded hardwood	n/a	aged 6 months, minimum
Pea gravel diaphragm	pea gravel: ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile	n/a	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	No. 57 or No. Approx. (3/8" to 3/4")	
Underdrain piping	F 750, Type P5 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" pert. @ 6" on center. 4 holes per row, minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth
Poured in place concrete (if required)	MHA, Min No. 3, f = 3500 psi @ 28 days, normal weight, air-entrained, reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required; per ACI 308, ASTM C 495 and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved mixes or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 308.2(b); vertical loading 0.10 or 0.1202; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.075" to 0.04"	Sand substitutions such as Diabase and Granite (AASHTO #10 are not acceptable. No calcium carbonate or dolomite sand substitutions are acceptable. No "rock dust" can be used for sand.

STORMWATER MANAGEMENT SUMMARY

AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
LOT 1	-	892	MICRO-BIORETENTION (M-6)
LOT 2	-	1,101	MICRO-BIORETENTION (M-6)
LOT 3	-	1,682	DRY WELLS (M-5), ROOFTOP DISCONNECTION (N-1) & NON-ROOFTOP DISCONNECTION (N-2)
LOT 4	-	768	MICRO-BIORETENTION (EXISTING HOUSE & DRIVEWAY)
LOT 5	-	1,244	DRYWELLS (M-5) & BIORETENTION (F-6)
LOT 6	-	1,163	BIORETENTION (F-6)
TOTAL	5,707	6,557	

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- A. THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- B. THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO ENSURE TRENCH DRAINAGE.
- C. THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- D. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- E. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- F. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

53 (cont)
Any alterations to the plans for the house to remain on this lot will require a hearing before the Historic Preservation Commission for Advisory Comments.
54. This plan was approved by the Planning Board under PB case No. 226 on January 5, 2017.

53. There is an existing dwelling dating to approximately 1902, to remain on Lot 4.

**SUPPLEMENTAL PLAN - TITLE SHEET
TEN OAKS FARM
LOTS 1 THRU 6
ZONED RR-DEO
TAX MAP No. 28 GRID No. 14 PARCEL Nos. 140
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2017
SHEET 1 OF 5**

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461 - 2995

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Karl DeLuna
Chief, Division of Land Development
Date: 5-15-17

Oliver Chen
Chief, Development Engineering Division
Date: 5-12-17

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36386, EXPIRATION DATE: 01/12/2018

Matthew J. Int. 5/31/17
Signature of Professional Engineer DATE

OWNER

ORVILLE E. & PATRICIA L. SHEPHERD
(ESTATE OF)
5020 TEN OAKS ROAD
CLARKSVILLE, MARYLAND 21029
C/O JAMES GREENFIELD 443-324-4732

DEVELOPER

MG LAND HOLDINGS I, LLC
6420 AUTUMN SKY WAY
COLUMBIA, MARYLAND 21044
443-324-4732

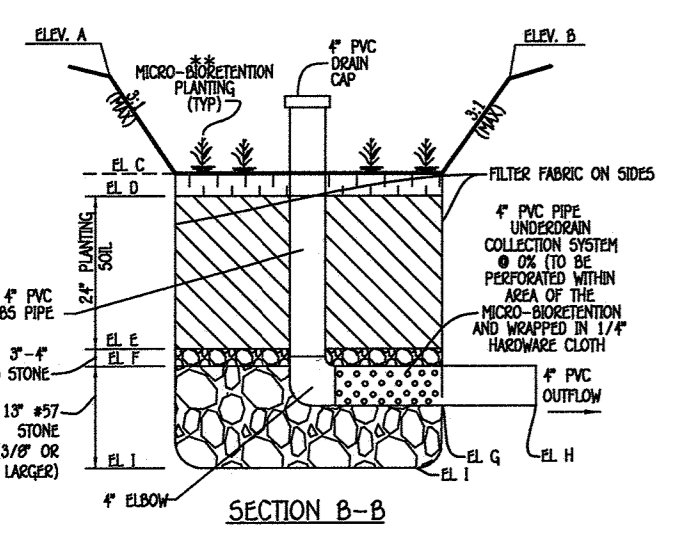
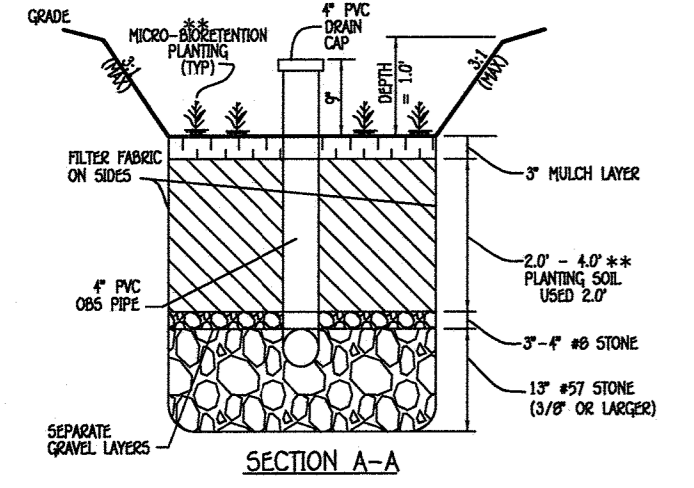
NO.	REVISION	DATE
1	REVISED CULVERT LABEL, NOTES, AND SECTION	5/19/17



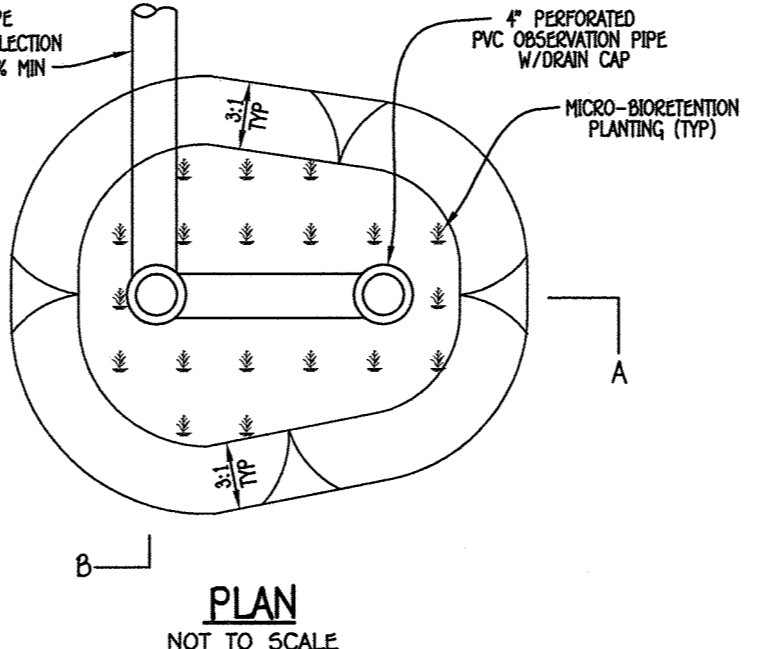
OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING ACCEPTABLE REPLACEMENT PLANT MATERIAL LIMITED TO THE FOLLOWING: 2000 MARKLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

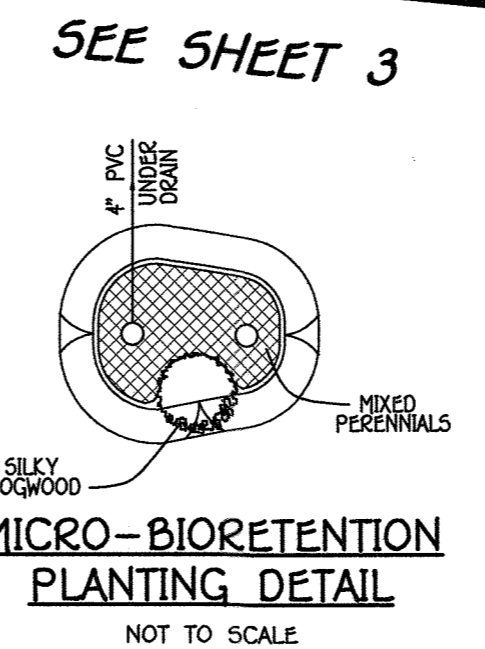
BIORETENTION & MICRO-BIORETENTION PLANT MATERIAL						
QUANTITY MICRO-BIO	QUANTITY MICRO-BIO 2	QUANTITY MICRO-BIO 3	QUANTITY BIO 4	QUANTITY BIO 5	NAME	MAXIMUM SPACING (FT.)
55	70	50	80	70	MIXED PERENNIALS	1.5 TO 3.0 FT.
1	1	1	1	1	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION



MICRO-BIORETENTION DETAIL (M-6)
NOT TO SCALE



PLAN
NOT TO SCALE



MICRO-BIORETENTION PLANTING DETAIL
NOT TO SCALE

STONE OUTLET SEDIMENT TRAP
TRAP TYPE = ST-II
DRAINAGE AREA = 0.80 AC.
TOTAL STORAGE REQUIRED = 2,808 CU.FT.
TOTAL STORAGE PROVIDED = 2,857 CU.FT.
WET STORAGE REQUIRED = 1,404 CU.FT.
WET STORAGE PROVIDED = 1,421 CU.FT. @ 518.70
DRY STORAGE REQUIRED = 1,404 CU.FT.
DRY STORAGE PROVIDED = 1,386 CU.FT. @ 520.10
EXISTING GROUND ELEV AT OUTLET = 519.00
BOTTOM OF TRAP ELEV = 516.00
BOTTOM OF TRAP DIMENSIONS = 39 FT x 9 FT
WEIR LENGTH = 4 FT
WEIR CREST ELEV = 520.10
CLEANOUT ELEV = 517.35
TOP OF EMBANKMENT = 521.10
SIDE SLOPES = 2:1
EMBANKMENT WIDTH = 4 FT
OUTLET PROTECTION APRON LENGTH = 15 FT
OUTLET PROTECTION DEPTH = 19 INCHES

PROCEDURE FOR CULVERT PIPE REMOVAL & REPLACEMENT

- REPAIR CATCH BASIN AS NOTED ON PLANS
- INSTALL RIPRAP OUTFALL AT DOWNSTREAM END OF PROPOSED CULVERT PIPE AND HEADWALL.
- BLOCK WEIR OPENINGS OF CATCHBASIN.
- UTILIZE EARTHDOES TO DIVERT RUNOFF FROM AROUND AREA OF CULVERT.
- IF NEEDED DURING CULVERT REPLACEMENT, UTILIZE CLEAN WATER PIPE DIVERSION PER DETAIL C-6 TO DIRECT DRAINAGE AROUND CULVERT CONSTRUCTION TO RIPRAP OUTFALL.
- CONSTRUCT 36" CMP CULVERT PIPE PER PLAN WITH UPSTREAM CONNECTION TO EXISTING CATCH BASIN AND CONSTRUCT DOWNSTREAM HEADWALL.
- ADD ADDITIONAL RIPRAP AT BASE OF CULVERT PIPE AND HEADWALL IF NECESSARY BASED ON FINAL PIPE PLACEMENT.
- BACKFILL CULVERT AND LAY GRAVEL FOR DRIVEWAY BASE.
- SEED DISTURBED AREAS AS NEEDED.
- REMOVE BLOCKING OF CATCH BASIN AND REMOVE EARTHDOES AROUND CULVERT.

DEVELOPER'S CERTIFICATE
I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.
Signature of Developer: *B. James Coffey* Date: 5/4/17

ENGINEER'S CERTIFICATE
I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Signature of Engineer: *Anthony J. Lutz* Date: 5/3/17

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 383096, EXPIRATION DATE: 01/12/2018.
Signature of Professional Engineer: *Anthony J. Lutz* Date: 5/3/17

MICRO-BIORETENTION

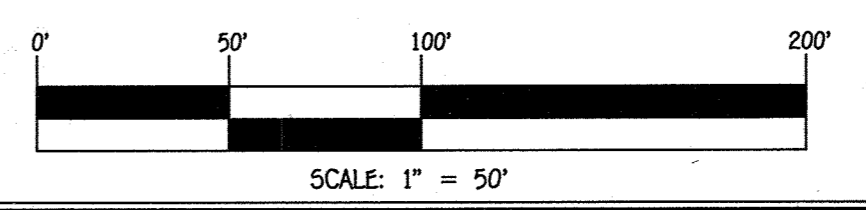
BIORETENTION FILTER	A	B	C	D	E	F	G	H	I
1 (LOT 1)	512.00	512.00	511.00	510.75	508.75	508.50	508.25	507.50	507.50
2 (LOT 2)	516.00	516.00	515.00	514.75	512.75	512.50	511.00	511.00	
3 (LOT 4)	533.80	533.80	532.80	532.55	530.55	530.30	529.00	529.00	
4 (LOT 5)	521.00	521.00	520.00	519.75	517.75	517.50	515.25	515.00	516.50
5 (LOT 6)	522.50	522.50	521.50	521.25	519.25	519.00	518.75	518.50	518.00

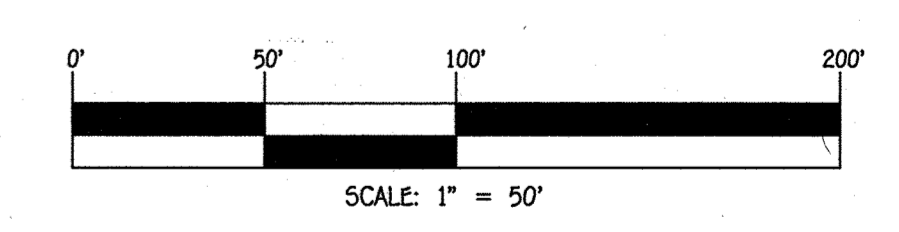
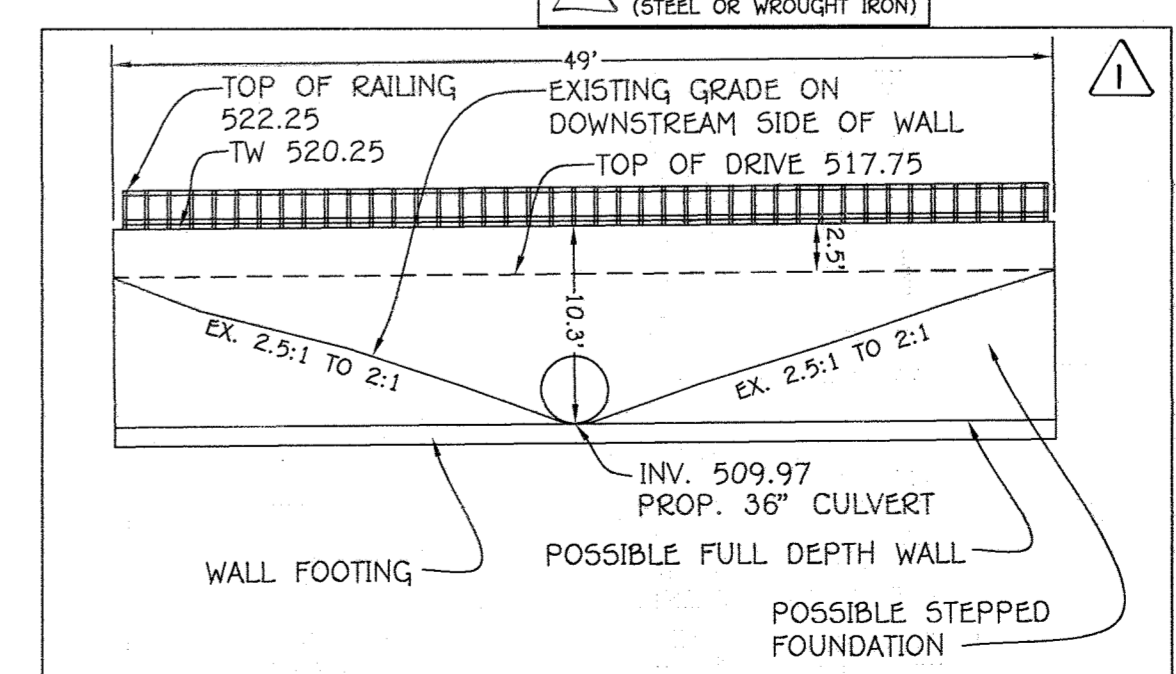
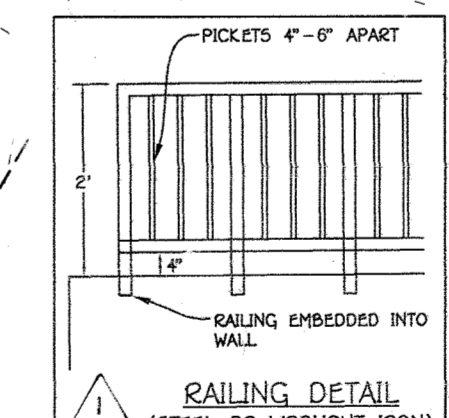
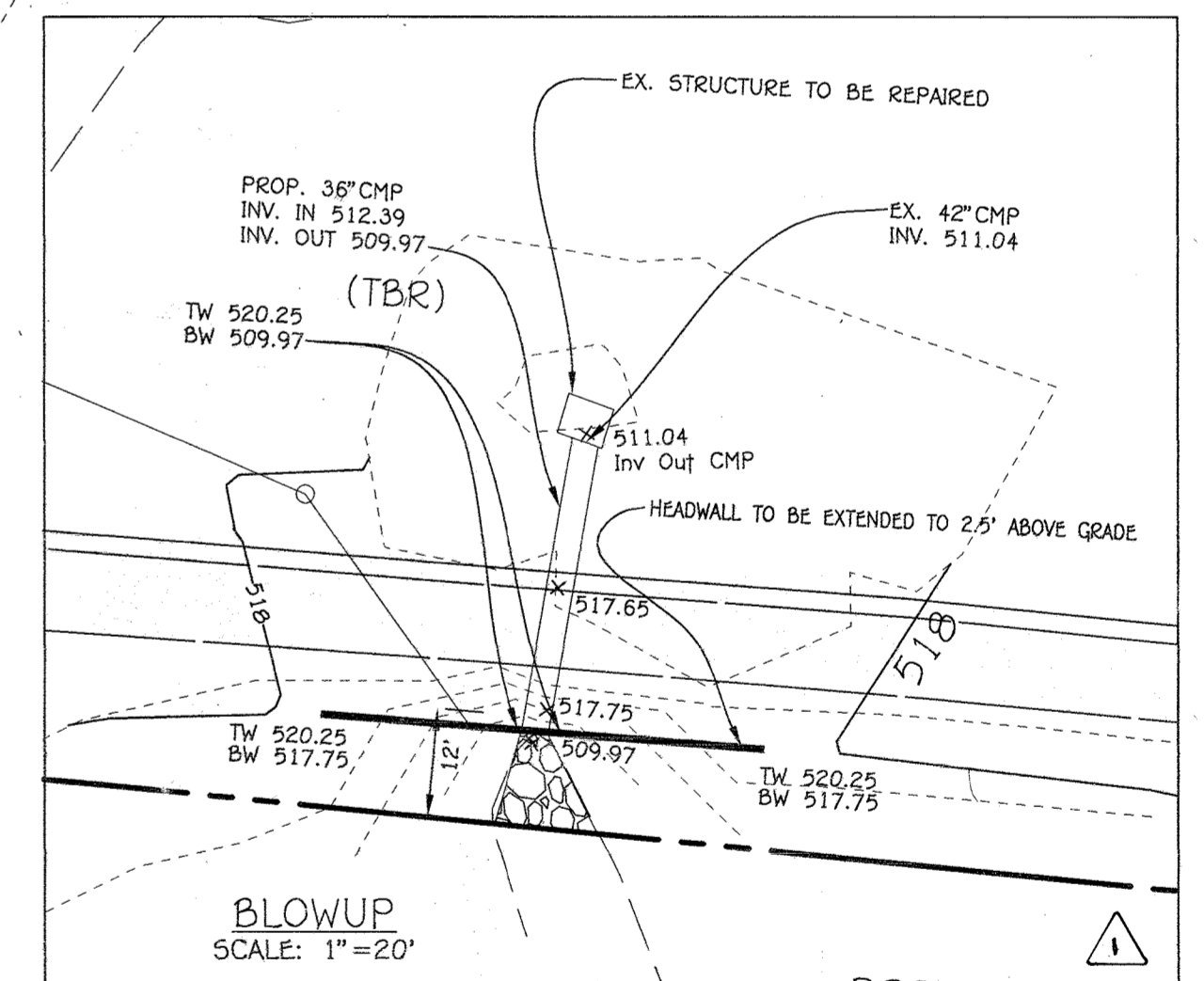
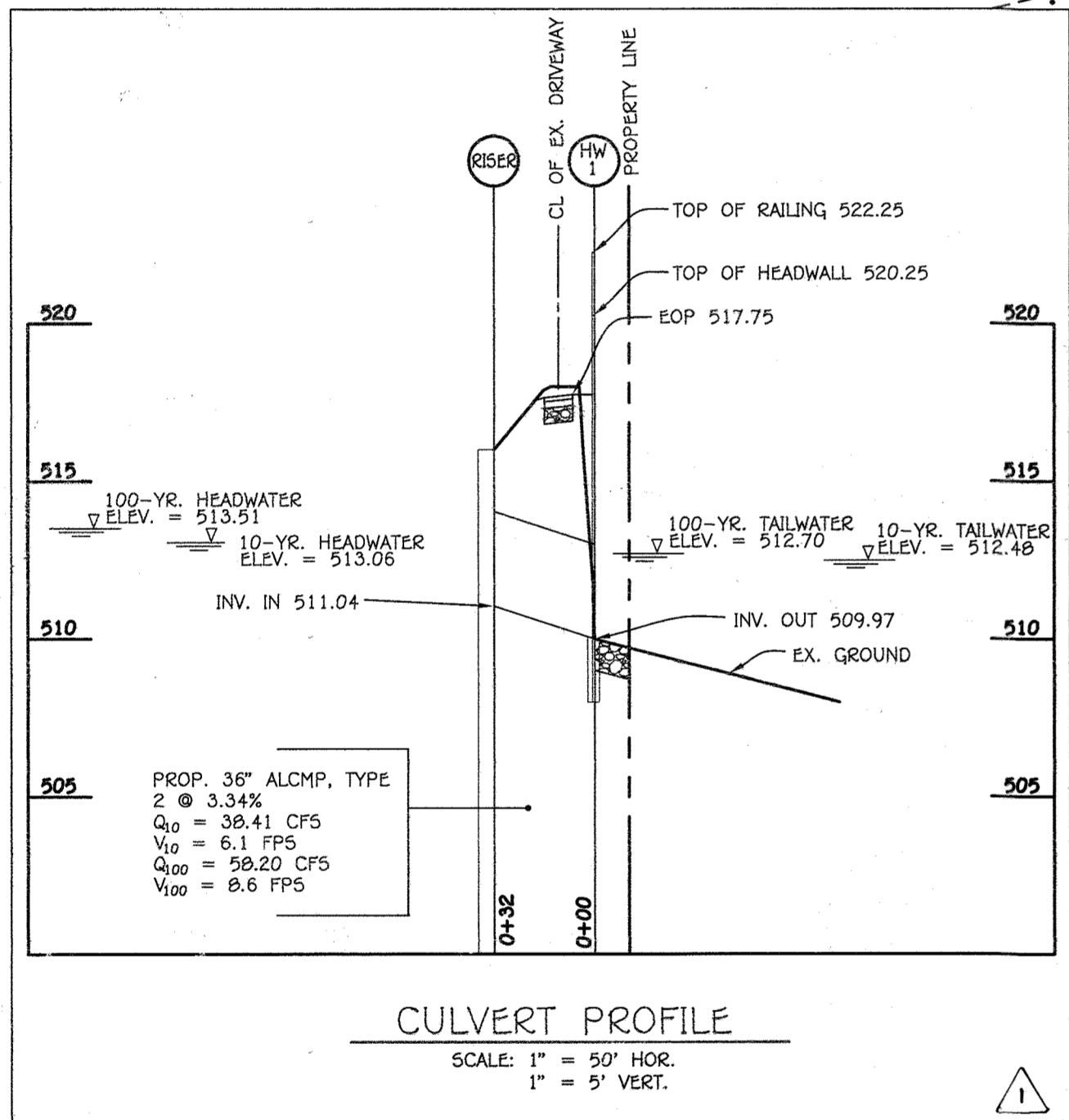
DEVELOPER'S / BUILDER'S CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
Signature of Developer: *B. James Coffey* Date: 5/4/17

SPECIMEN TREE TABLE

KEY	SPECIES	SIZE (DBH)	CGZ (FT RADII)	COMMENTS	STATUS
1	SILVER MAPLE	79"	118.5	MULTI-STEMMED ABOVE BH. POOR CONDITION, TRUNK ROT	TO REMAIN
2	ENGLISH WALNUT	40.5"	60.75	POOR CONDITION, TRUNK ROT, NOT NATIVE	TO REMAIN
3	NORWAY MAPLE	39"	52.5	GOOD CONDITION, NOT NATIVE	TO REMAIN
4	NORWAY MAPLE	39"	58.5	FAIR CONDITION, NOT NATIVE	TO REMAIN
5	NORWAY MAPLE	31"	46.5	GOOD CONDITION, NOT NATIVE	TO REMAIN
6	MULBERRY	39"	52.5	POOR CONDITION, TRUNK ROT & BROKEN LIMBS	TO REMAIN
7	MULBERRY	37"	55.5	POOR CONDITION, TRUNK ROT & BROKEN LIMBS	TO REMAIN
8	MULBERRY	42"	63	POOR CONDITION, BROKEN TRUNK & LIMB FAILURE	TO REMAIN
9	BOX ELDER	53.5"	80.25	POOR CONDITION, BROKEN TRUNK & ROT	TO REMAIN

SUPPLEMENTAL PLAN - TOPOGRAPHY, SOILS, STORMWATER MANAGEMENT, LANDSCAPE & FOREST CONSERVATION
TEN OAKS FARM
LOTS 1 THRU 6
ZONED RR-DEO
TAX MAP No. 28 GRID No. 14 PARCEL Nos. 140
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2017
SHEET 2 OF 5





DEVELOPER'S CERTIFICATE
"I/We certify that all development and construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Signature of Developer 5/4/17 Date

ENGINEER'S CERTIFICATE
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer 5/3/17 Date

DEVELOPER'S / BUILDER'S CERTIFICATE
"I/WE CERTIFY THAT THESE DOCUMENTS SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING."

Signature 5/4/17 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature 5-16-17 Date
Chief, Division of Land Development

Signature 5-12-17 Date
Chief, Development Engineering Division

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36306, EXPIRATION DATE: 01/12/2016.

Signature 5/3/17 DATE
Signature of Professional Engineer

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

OWNER
ORVILLE E. & PATRICIA L. SHEPHERD (ESTATE OF)
5020 TEN OAKS ROAD
CLARKSVILLE, MARYLAND 21029
C/O JAMES GREENFIELD 443-324-4732

DEVELOPER
MG LAND HOLDINGS 1, LLC
6420 AUTUMN SKY WAY
COLUMBIA, MARYLAND 21044
443-324-4732

NO.	DESCRIPTION	DATE
1	REVISED GAS LINE ERE., FCE, CULVERT LABELS, ENVIRONMENTAL SETBACKS, AND FLOODPLAIN LABELS. ADDED CULVERT & HEADWALL DETAILS.	5/3/20

SUPPLEMENTAL PLAN - TOPOGRAPHY, SOILS, STORMWATER MANAGEMENT, LANDSCAPE & FOREST CONSERVATION

TEN OAKS FARM
LOTS 1 THRU 6
ZONED RR-DEO

TAX MAP No. 28 GRID No. 14 PARCEL Nos. 140
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2017
SHEET 3 OF 5

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461 - 2955

PLANTING / SOIL SPECIFICATIONS

- Planting of Nursery Stock Shall Take Place Between March 15th And April 30th Or September 15th And November 15th.
- A Twelve (12) Inch Layer Of Topsoil Shall Be Spread Over All Restoration Areas Impacted By Site Grading To Assure A Suitable Planting Area. If Applicable, Disturbed Areas Shall Be Seeded And Stabilized In Accordance With The Sediment & Erosion Control Plan For This Project. Planting Areas Not Impacted By Site Grading Shall Have No Additional Topsoil Installed.
- All Bare Root Planting Stock Shall Have Their Root System Dipped Into An Anti-Desiccant Gel Prior To Planting.
- Plants Shall Be Installed So That The Top Of The Root Mass Is Level With The Top Of Existing Grade. Backfill In The Planting Pits Shall Consist Of 3 Parts Existing Soil To 1 Part Fine Fines Or Equivalent.
- Fertilizer Shall Consist Of Agriform 22-8-2, Or Equivalent, Applied As Per Manufacturer's Specifications.
- A Two (2) Inch Layer Of Hardwood Mulch Shall Be Placed Over The Root Area Of All Plantings. See Planting Detail.
- Plant Material Shall Be Transported To The Site In A Tarped Or Covered Truck. Plants Shall Be Kept Moist Prior To Planting.
- All Non-Organic Debris Associated With The Planting Operation Shall Be Removed From The Site By The Contractor.

SEQUENCE OF PLANT INSTALLATION

- Follow Sequence of Construction shown on sheet 5.
- Proposed Reforestation Areas Impacted By The Site Grading Shall Be Topsoiled And Stabilized As Per Note 2 Of The Planting / Soil Specifications.
- Plants Shall Be Installed And Maintained As Per Notes And Specifications For This Project.
- Upon Completion Of The Plantings, Signage Shall Be Installed As Per The Signage Detail.
- Plantings Shall Be Guaranteed And Maintained In Accordance With The "Guarantee Requirements" And "Maintenance Of Plantings" Associated With This Project.

MULTIFLORA ROSE CONTROL NOTE:

PRIOR TO PLANTING ALL MULTIFLORA ROSE WITHIN PLANTING AREAS SHALL BE REMOVED. Removal of The Multiflora Rose May Be Performed With Mowing And Herbicide Treatments. Physical Removal of All Top Growth Followed By A Periodic Herbicide Treatment Of Stump Sprouts Is Recommended. Native Tree And Shrub Species Occurring Within The Rose Thickets Should Be Retained Wherever Possible. Herbicide Treatments Shall Occur On Two (2) Month Intervals During The First Growing Season And Once In The Spring And Once In The Fall For Subsequent Years. Herbicide Used Shall Be Made Specifically To Address Woody Plant Species And Shall Be Applied As Per Manufacturer's Specifications. Care Should Be Taken Not To Spray Planted Trees Or Naturally Occurring Native Tree And Shrub Seedlings. It Is Recommended That Initiation Of Rose Removal Begin At Least Six Months Prior To Planting So That New Growth Of Roses Is Able To More Successfully Managed.

FOREST PROTECTION GENERAL NOTES

- ALL FOREST RETENTION AREAS SHALL BE TEMPORARILY PROTECTED BY WELL ANCHORED BLAZE ORANGE PLASTIC MESH FENCING, AS NECESSARY, AND SIGNAGE AS INDICATED ON THE PLANS. THE DEVICES SHALL BE INSTALLED ALONG THE FOREST RETENTION BOUNDARY PRIOR TO ANY LAND CLEARING, GRUBBING, OR GRADING ACTIVITIES.
- THE FOREST PROTECTION DEVICES SHALL BE INSTALLED SUCH THAT THE CRITICAL ROOT ZONES OF ALL TREES WITHIN THE RETENTION AREA NOT OTHERWISE PROTECTED WILL BE WITHIN FOREST PROTECTION DEVICES, UNLESS ROOT PRUNING IS PROPOSED.
- ALL PROTECTION DEVICES SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION, INCLUDING SILT FENCE BEING USED AS PROTECTIVE FENCING. ALL DEVICES SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION HAS CEASED IN THE IMMEDIATE VICINITY.
- ATTACHMENT OF SIGNS, OR ANY OTHER OBJECTS TO TREES IS PROHIBITED. NO EQUIPMENT, MACHINERY, VEHICLES, MATERIALS OR EXCESSIVE PEDESTRIAN TRAFFIC SHALL BE ALLOWED WITHIN THESE PROTECTED AREAS.
- INSTALLATION AND MAINTENANCE OF PROTECTIVE FENCING AND SIGNAGE SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL TAKE THE UTMOST CARE TO PROTECT TREE ROOT SYSTEMS DURING ALL CONSTRUCTION ACTIVITIES. TREE ROOT SYSTEMS SHALL BE PROTECTED FROM SMOTHERING, FLOODING, EXCESSIVE WETTING FROM DE-WATERING OPERATIONS, OFF-SITE RUN OFF, SPILLAGE AND DRAINING OF MATERIALS THAT MAY BE HARMFUL TO TREES.
- THE GENERAL CONTRACTOR SHALL PREVENT PARKING OF CONSTRUCTION VEHICLES AND EQUIPMENT, AND THE STORING OF BUILDING SUPPLIES OR STOCKPILING OF EARTH WITHIN FOREST CONSERVATION EASEMENTS.
- REMOVAL OF TOPSOIL, OR ROOT MAT WITHIN THE TREE PRESERVATION AREA SHALL BE PROHIBITED.
- THE GENERAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY TREES DAMAGED OR DESTROYED WITHIN THE FOREST CONSERVATION EASEMENTS.
- ROOT PRUNING SHALL BE USED AT THE LIMIT OF DISTURBANCE OR LIMIT OF GRADING WITHIN AND ADJACENT TO ALL PRESERVATION AREAS, AS NECESSARY.

REFORESTATION PLANTING NOTES

- Plants, Related Material, And Operations Shall Meet The Detailed Description As Given On The Plans And As Described Herein.
- Plant Material, Unless Otherwise Specified, Shall Be Nursery Grown, Uniformly Branched And Have A Vigorous Root System. Plant Material Shall Be Healthy, Vigorous Plants Free From Defects, Decay, Disturbing Roots, Sunscald Injuries, Abrasions Of The Bark, Plant Disease, Insect Pest Eggs, Borers, Infestations Or Other Insect Infestations. Plant Material That Is Weak Or Which Has Been Cut Back From Larger Grades To Meet Specified Requirements Will Be Rejected. Trees With Forked Leaders Will Not Be Accepted. Plants Shall Be Freshly Dug; No Heeled-in Plants Or Plants From Cold Storage Will Be Accepted.
- Unless Otherwise Specified, Plant Material Shall Conform To "American Standard For Nursery Stock" ANSI Z60.1-1990, Published By The American Association Of Nurserymen, Including All Addenda.
- Contractor Will Be Required To Guarantee Plant Material For A Period Of Two (2) Years After The Date Of Acceptance And Maintain A 75% Survivability At The End Of The Two (2) Years.
- To Lessen The Chance Of Loss, The Plantings Should Be Checked From Time To Time To Insure That They Are Receiving Sufficient Water. See "Maintenance Of Plantings" For Guidelines.
- The Location And Orientation Of All Plant Material Shall Be Randomly Planted In Designated Reforestation Areas By The Contractor. Contractor Shall Be Responsible For Moving Any Plant Material Installed Without Approval.
- Mowing And Applying Herbicides To The Reforestation Area Is Prohibited At Any All Stages Of The Planting Process In Order To Encourage The Existing Saplings To Grow.
- Contractor Is Responsible For Installing And Pruning Plant Material In The Proper Planting Season For Each Plant Type, See Tree Planting & Maintenance Calendar.
- Upon Completion Of Installation, Signage Shall Be Installed As Shown.

MAINTENANCE OF PLANTINGS

- Maintenance Of Plantings Shall Last For A Period Of 26 Months.
- All Plant Material Shall Be Generally Watered Twice A Month During The 1st Growing Season. Watering May Be More Or Less Frequent Depending On Weather Conditions.
- During The 2nd Growing Season, Plant Material Shall Be Watered Once A Month From May To September, As Needed.
- Invasive Exotics And Noxious Weeds Shall Be Removed From The Reforestation Area(s). Old Field Successional Species Shall Be Retained.
- Plants Shall Be Examined A Minimum Of Two (2) Times During The Growing Season For Serious Plant Pests And Diseases With The Appropriate Agent.
- Dead Branched Shall Be Pruned From The Plantings.

GUARANTEE REQUIREMENTS

A 75% Survival Rate For The Reforestation Plantings Is Required At The End Of The 24 Month Maintenance Period. All Plant Material Below The 75% Threshold Is Required To Be Replaced At The Beginning Of The Next Growing Season.

PRE-CONSTRUCTION MEETING

- AFTER THE BOUNDARIES OF THE FOREST RETENTION AREAS HAVE BEEN FIELD LOCATED AND MARKED, AND AFTER THE FOREST PROTECTION DEVICES HAVE BEEN INSTALLED, BUT BEFORE ANY OTHER DISTURBANCE HAS TAKEN PLACE ON SITE, A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE ON SITE. THE DEVELOPER, CONTRACTOR OR PROJECT MANAGER, AND HOWARD COUNTY INSPECTORS SHALL ATTEND. THE PURPOSE OF THIS MEETING WILL BE:
 - TO IDENTIFY THE LOCATIONS OF THE FOREST RETENTION AREAS, SPECIMEN TREES WITHIN 50 FEET OF THE LIMIT OF DISTURBANCE, LIMITS OF CONSTRUCTION, EMPLOYEE PARKING AREAS AND EQUIPMENT STAGING AREAS.
 - INSPECT ALL FLAGGED BOUNDARIES AND PROTECTION DEVICES;
 - MAKE ALL NECESSARY ADJUSTMENTS;
 - ASSIGN RESPONSIBILITIES AS APPROPRIATE AND DISCUSS PENALTIES.

CONSTRUCTION MONITORING

- THE SITE SHALL BE INSPECTED PERIODICALLY DURING THE CONSTRUCTION PHASE OF THE PROJECT. A QUALIFIED PROFESSIONAL SHALL BE RESPONSIBLE FOR IDENTIFYING DAMAGE TO PROTECTED FOREST AREAS OR INDIVIDUAL TREES WHICH MAY HAVE BEEN CAUSED BY CONSTRUCTION ACTIVITIES, SUCH AS SOIL COMPACTION, ROOT INJURY, TRUNK WOUNDS, LIMB INJURY, OR STRESS CAUSED BY FLOODING OR DROUGHT CONDITIONS.
- ANY SUCH DAMAGE THAT MAY OCCUR SHALL BE REMEDIATED IMMEDIATELY USING APPROPRIATE MEASURES. SEVERE PROBLEMS MAY REQUIRE CONSULTATION WITH A PROFESSIONAL ARBORELIST.
- THE CONSTRUCTION PROCEDURE SHALL NOT DAMAGE AREAS OUTSIDE OF THE LIMITS OF DISTURBANCE AS DESIGNATED ON THE PLANS. ANY DAMAGE SHALL BE RESTORED BY THE CONTRACTOR AT HIS EXPENSE AND TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

**FOREST CONSERVATION WORKSHEET
VERSION 1.0**

BASIC SITE DATA:		
A. TOTAL TRACT AREA.....		20.12 Ac
B. AREA WITHIN 100 YEAR FLOODPLAIN.....		1.76 Ac
C. NET TRACT AREA.....		18.36 Ac
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)		
AREA MGR	IDA	HDR
	MPD	CIA
INFORMATION FOR CALCULATIONS:		
D. AFFORESTATION THRESHOLD.....	0.20% x D =	3.67
E. FOREST CONSERVATION THRESHOLD.....	0.25% x D =	4.59
F. EXISTING FOREST COVER.....		0.55
G. AREA OF FOREST ABOVE CONSERVATION THRESHOLD.....		0.00
BREAK EVEN POINT:		
H. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION.....		0.00
I. CLEARING PERMITTED WITHOUT MITIGATION.....		0.00
PROPOSED FOREST CLEARING:		
J. TOTAL AREA OF FOREST TO BE CLEARED.....		0.00
K. TOTAL AREA OF FOREST TO BE RETAINED.....		0.55
PLANTING REQUIREMENTS:		
L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD.....		0.00
M. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD.....		0.00
N. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD.....		0.00
P. TOTAL REFORESTATION REQUIRED.....		0.00
Q. TOTAL AFFORESTATION REQUIRED.....		3.12
R. TOTAL REFORESTATION AND AFFORESTATION REQUIRED.....		0.00
S. EXCESS FOREST CREDIT.....		0.00

SCHEDULE A - PERIMETER LANDSCAPE EDGE

PERIMETER CATEGORY	P-1 ADJACENT TO ROADWAY	P-2 ADJACENT TO PERIMETER PROPERTIES	P-3 ADJACENT TO PERIMETER PROPERTIES	P-4 ADJACENT TO PERIMETER PROPERTIES	P-5 ADJACENT TO PERIMETER PROPERTIES	P-6 ADJACENT TO PERIMETER PROPERTIES	TOTAL
LANDSCAPE TYPE	B	A	A	A	A	A	
LINEAR FEET OF PERIMETER TO REMAIN	447 L.F. (LESS EMBANKMENT)	400 L.F.	606 L.F.	512 L.F.	654 L.F. (LESS EX. HOUSES)	941 L.F. (LESS EX. HOUSES)	
CREDIT FOR EXISTING TREES TO REMAIN	N/A	N/A	87 LF OF EX. TREELINE 519 LF REMAINING	512 LF OF EX. TREELINE 0 LF REMAINING	205 LF OF EX. TREELINE 449 LF REMAINING	N/A	
NUMBER OF PLANTS REQUIRED	9/11	7	9	0	8	16	49
SHADE TREES	(447'/50' = 8.9 OR 9)	(400'/60' = 6.6 OR 7)	(519'/60' = 8.6 OR 9)	0	(449'/60' = 7.5 OR 8)	(941'/60' = 15.6 OR 16)	11
EVERGREEN TREES	(447'/40' = 11.2 OR 11)	0	0	0	0	0	0
CREDIT FOR EXISTING VEGETATION	0	0	0	0	0	0	0
SHADE TREES	1	0	0	0	0	0	0
SMALL/MEDIUM DECIDUOUS TREES OR EVERGREENS	0	0	0	0	0	0	0
NUMBER OF PLANTS PROVIDED	8	14	6	0	8	16	38
SHADE TREES	11	0	6	0	0	0	31
EVERGREEN TREES	0	0	0	0	0	0	0

NOTE: CREDIT IS BEING TAKEN FOR AN EXISTING 53.5' BOXEDLDER ALONG PERIMETER 1.

FCE - 3.12 acres

PLANTING REQUIRED: 624 = 2100 + 84 UNITS
PLANTING PROVIDED: 610 = 2135 + 84 UNITS (LANDSCAPE CREDIT)

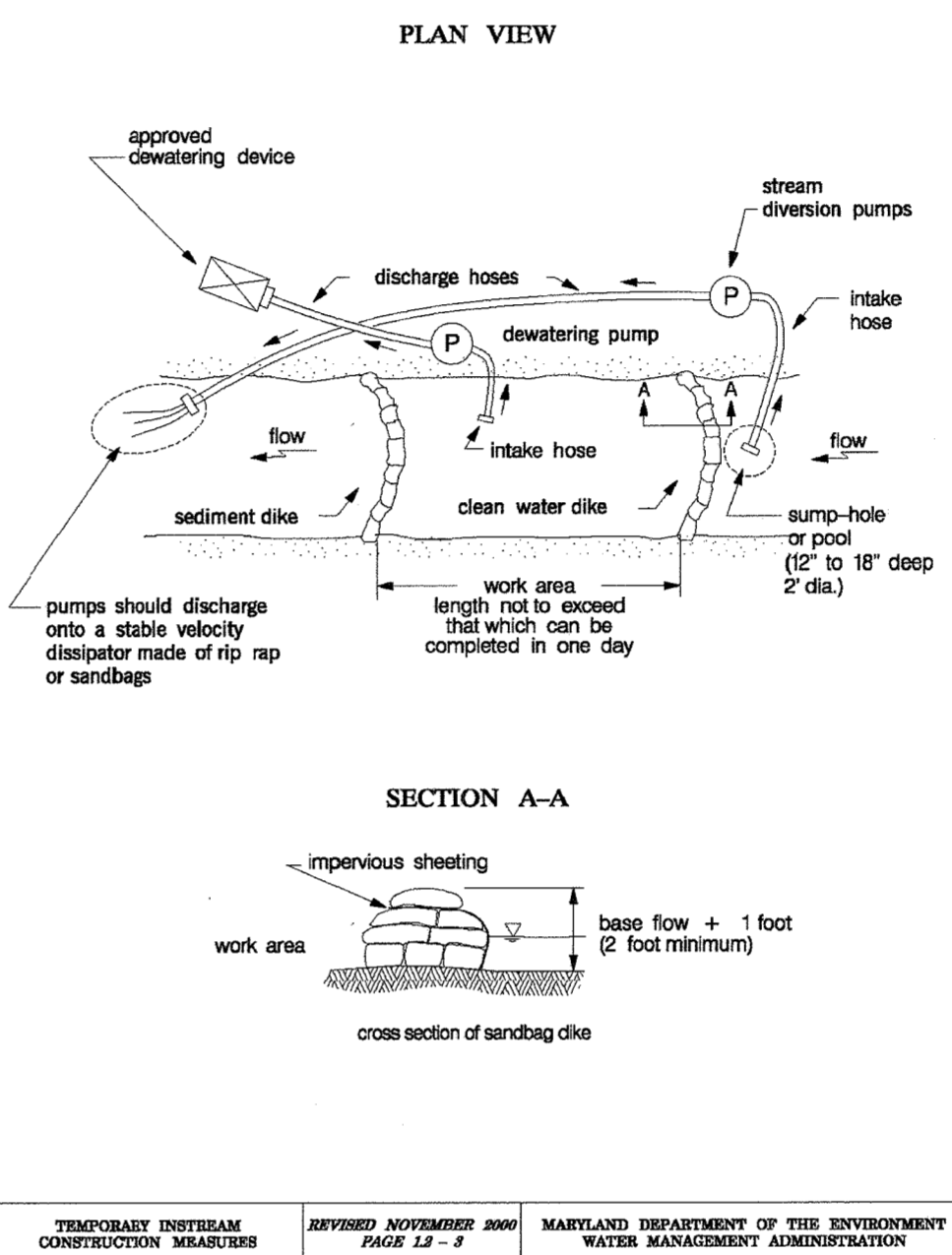
QTY	Species	Size (Spacing)
110	Acer rubrum - Red maple	1" Cal. (19'x6')
100	Carya tomentosa - Rednut Hickory	1" Cal. (19'x6')
100	Carya alba - Pignut Hickory	1" Cal. (19'x6')
40	Lonicera florida - Flowering Dogwood	1" Cal. (19'x6')
80	Lindulindon tulipifera - Tulip Poplar	1" Cal. (19'x6')
80	Quercus alba - White oak	1" Cal. (19'x6')
50	Quercus nigra - Red oak	1" Cal. (19'x6')
50	Quercus whiteoak - Bald oak	1" Cal. (19'x6')
15	Viburnum acerifolium - Highbush Viburnum	2 gal.
15	Viburnum acerifolium - Arrowwood Viburnum	2 gal.

Note: (1) SIZE PROPOSED TO BE UTILIZED AND PLANTED AT 200 TREES PER ACRE (200 TREES/ACRE X 3.12 ACRES = 624 TREES). (2) PLANTING UNITS: 33 UNITS = 1" CAL. TREE; 7 UNITS = 1" CAL. TREE. (3) CREDIT TAKEN FOR LANDSCAPE PLANTING = 12 TREES = 84 PLANTING UNITS. (4) SURETY TO BE MAID ON 3.12 ACRES DUE TO LANDSCAPE CREDIT.

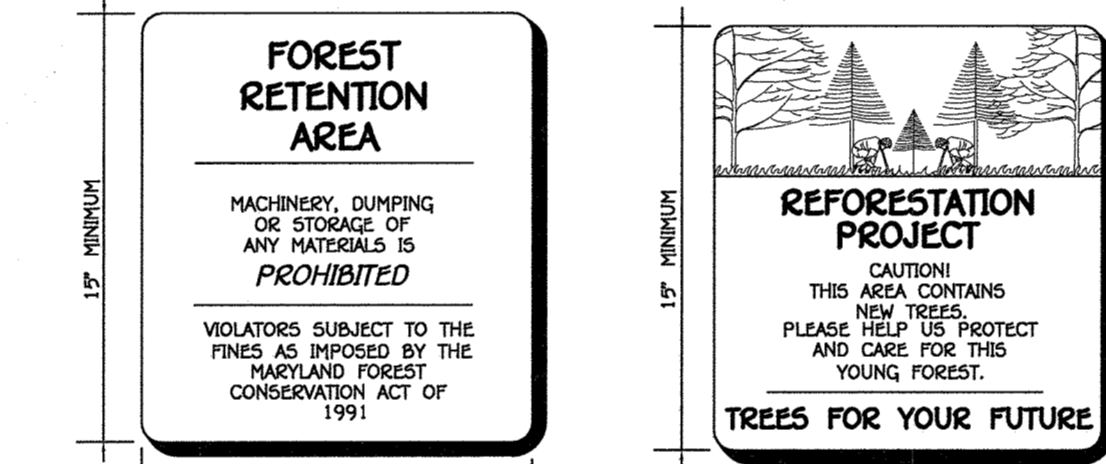
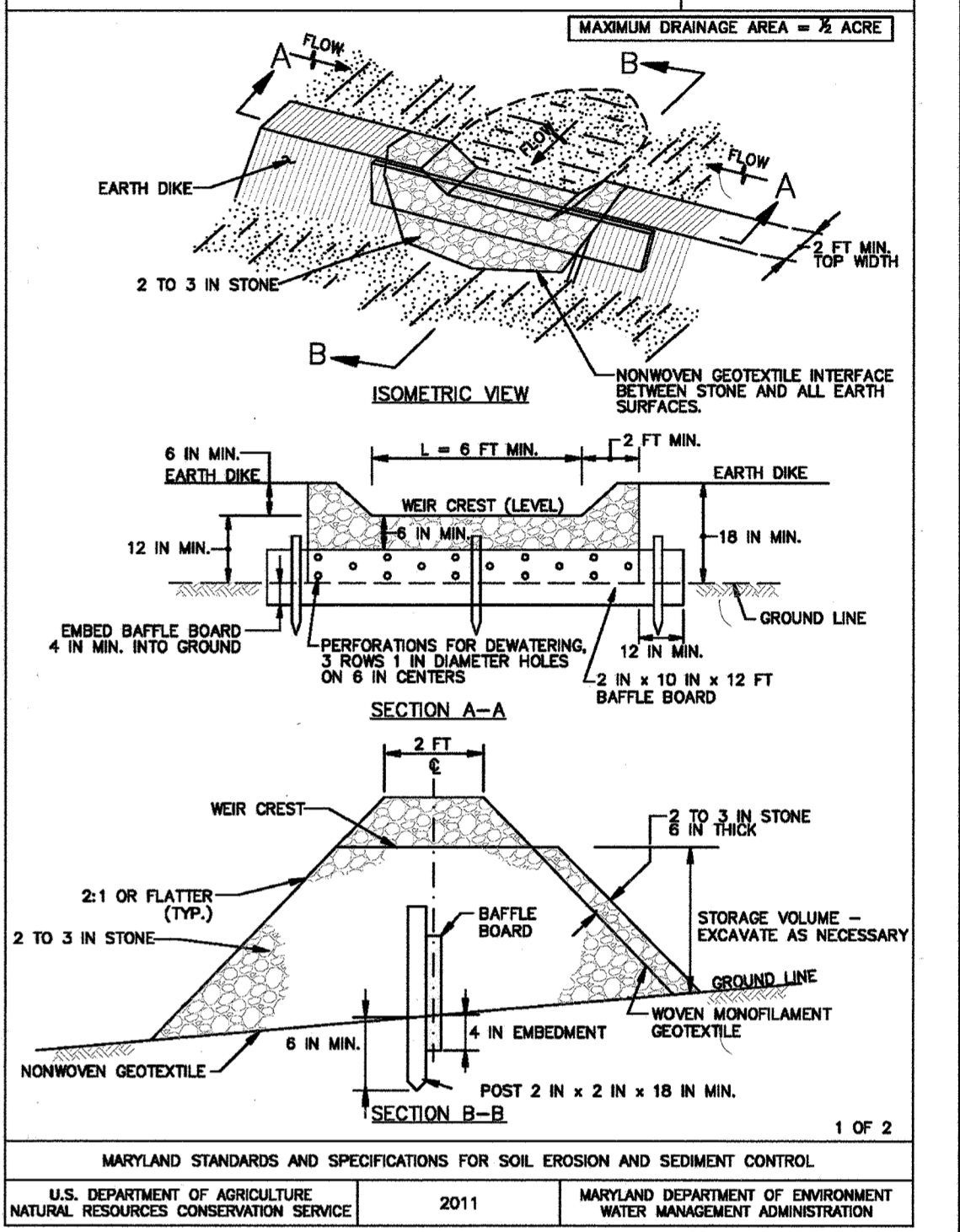
LANDSCAPING PLANT LIST				
QTY.	KEY	NAME	SIZE	
16	☉	ACER RUBRUM 'RED SUNSET' (RED SUNSET RED MAPLE)	2.5" - 3" CAL. FULL CROWN, B&B	
16	☉	TILIA CORDATA 'GREENSPIRE' (GREENSPIRE LITTLELEAF LINDEN)	2.5" - 3" CAL. FULL CROWN, B&B	
20	☉	THUJA PLICATA (GIANT ARBOVITAE 'GREEN GIANT')	5' - 6' HT. B&B	
11	☉	ILEX 'NELLIE R. STEVENS' (NELLIE STEVENS HOLLY)	5' - 6' HT. B&B	
6	+	PLATANUS X ACERIFOLIA (LONDON PLANE)	2.5" - 3" CAL. FULL CROWN, B&B	

TOTAL: 38 SHADE TREES & 31 EVERGREENS

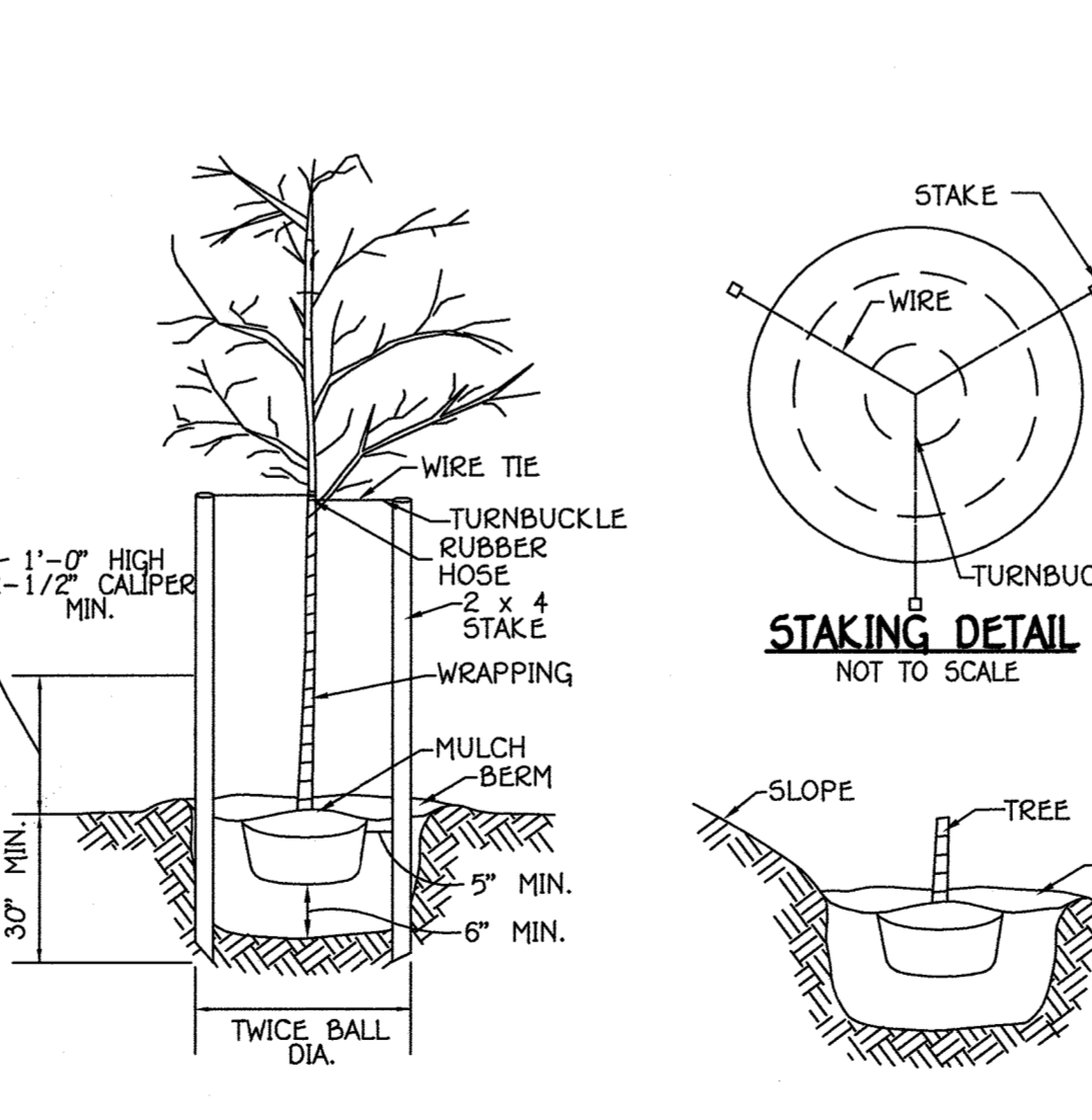
**Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE**



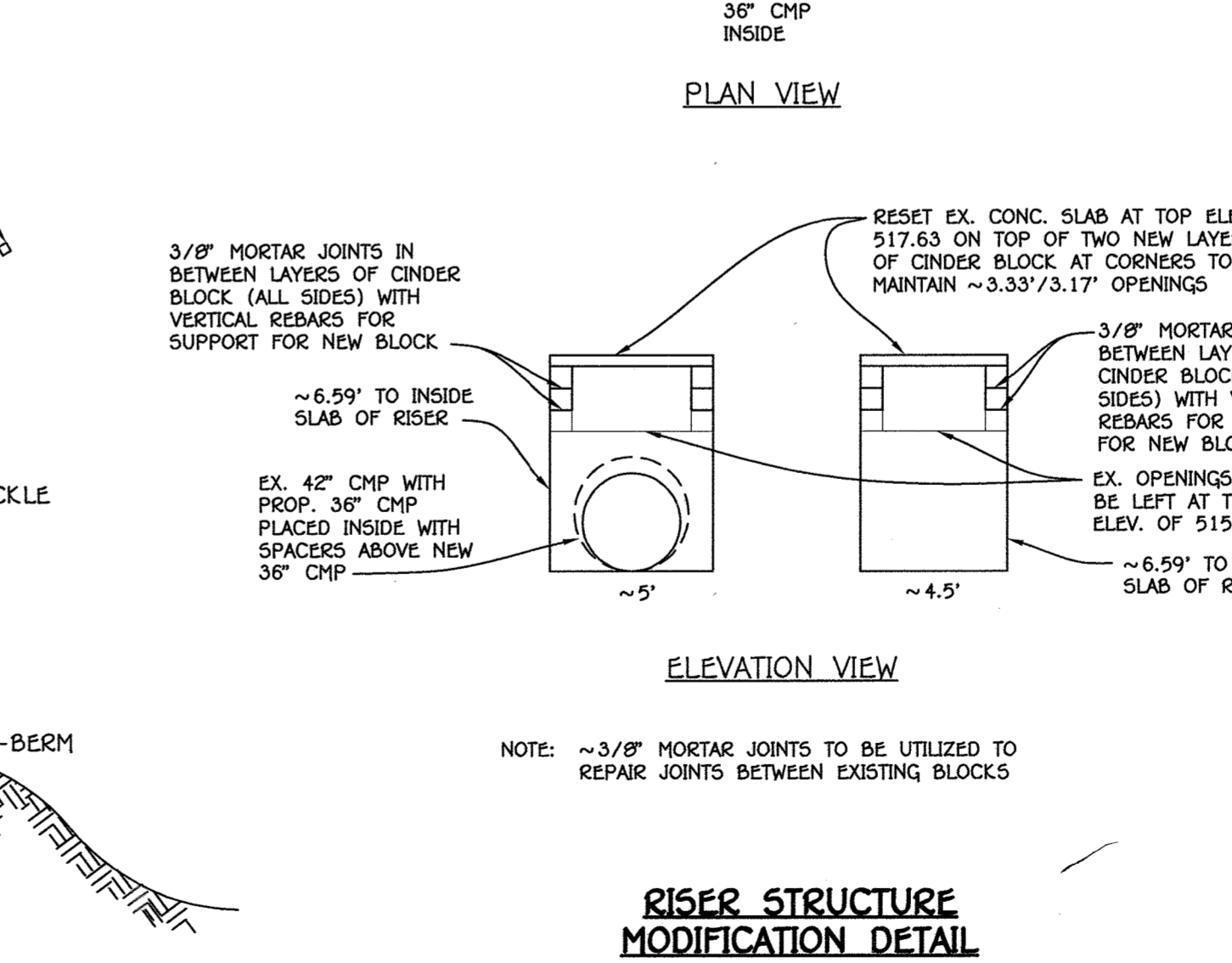
DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE



**FOREST CONSERVATION SIGN DETAIL
NOT TO SCALE**



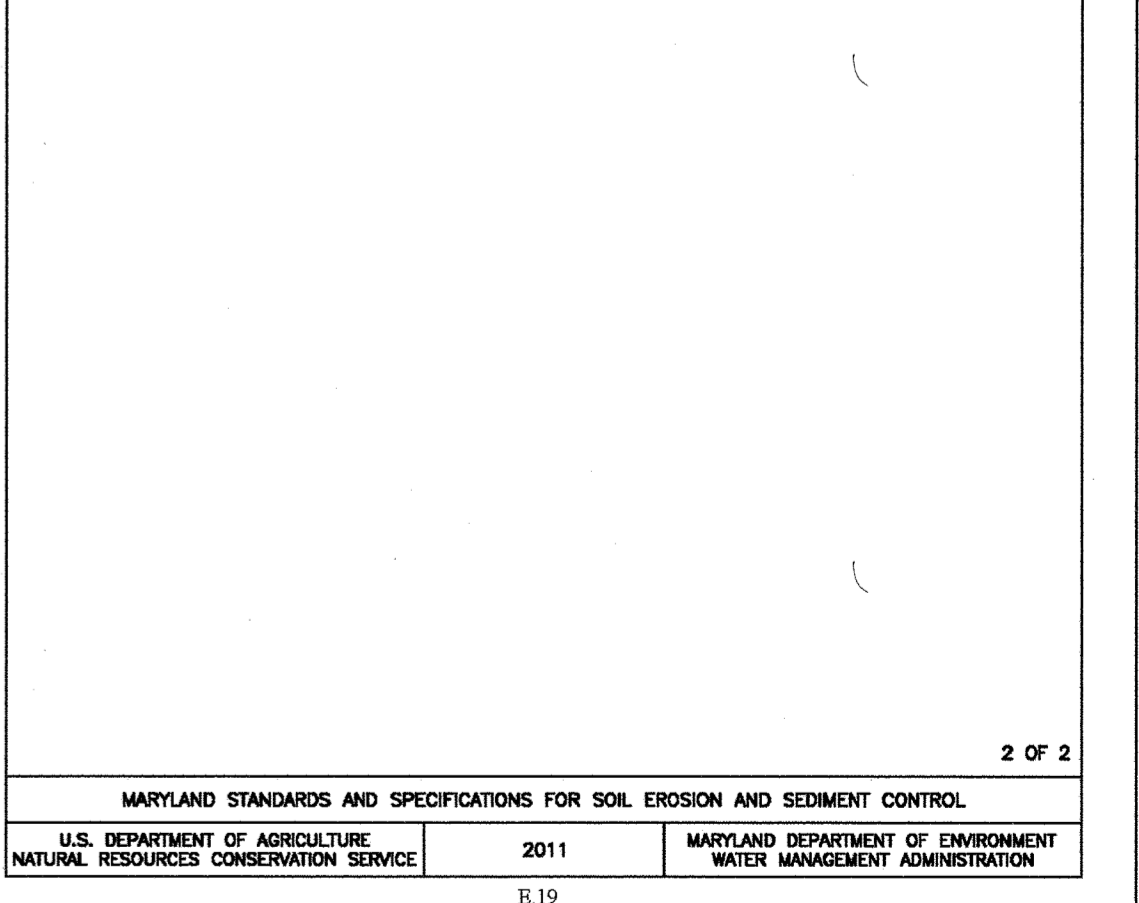
**DEVELOPER'S CERTIFICATE
NOT TO SCALE**



**RISER STRUCTURE MODIFICATION DETAIL
NOT TO SCALE**

DETAIL E-7 TEMPORARY STONE OUTLET STRUCTURE

- CONSTRUCTION SPECIFICATIONS**
- PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
 - USE NONWOVEN GEOTEXTILE ON INTERFACE BETWEEN GROUND AND STONE.
 - PERFORATE BAFFLE BOARD WITH 3 ROWS OF 1 INCH DIAMETER HOLES 8 INCHES ON CENTER, EMBED A MINIMUM OF 4 INCHES INTO GROUND, AND EXTEND BAFFLE BOARD MINIMUM OF 12 INCHES INTO EARTH DIKE.
 - USE CLEAN 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE. PLACE WOVEN MONOLAYER GEOTEXTILE ON UPSTREAM FACE AND COVER WITH A MINIMUM OF 6 INCHES OF ADDITIONAL STONE.
 - USE NONWOVEN AND WOVEN MONOLAYER GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
 - SET WEIR CREST OF STONE 6 INCHES LOWER THAN THE TOP OF EARTH DIKE. USE MINIMUM LENGTH OF 6 FEET FOR WEIR CREST.
 - REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 6 INCHES OF WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO DRAIN, MAINTAIN LINE, GRADE, AND CROSS SECTION.
 - UPON REMOVAL OF STONE OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND, WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.



DEVELOPER'S / BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIAL WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

OWNER
ORVILLE E. & PATRICIA L. SHEPHERD (ESTATE OF)
5020 TEN OAKS ROAD
CLARKSVILLE, MARYLAND 21029
C/O JAMES GREENFIELD 443-324-4732

DEVELOPER
MG LAND HOLDINGS 1, LLC
6420 AUTUMN SKY WAY
COLUMBIA, MARYLAND 21044
443-324-4732

**DETAILS
TEN OAKS FARM**
LOTS 1 THRU 6
ZONED RR-DEO
TAX MAP No. 2B GRID No. 14 PARCEL Nos. 140
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2017
SHEET 4 OF 5

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALDORCK NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461-2895

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development
[Signature]
Date: **5-15-17**

APPROVED: DEVELOPMENT ENGINEERING DIVISION
Chief, Development Engineering Division
[Signature]
Date: **5-12-17**

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 36366, EXPIRATION DATE: 01/12/2018.
[Signature]
Signature of Professional Engineer DATE **5/15/17**



OWNER
ORVILLE E. & PATRICIA L. SHEPHERD (ESTATE OF)
5020 TEN OAKS ROAD
CLARKSVILLE, MARYLAND 21029
C/O JAMES GREENFIELD 443-324-4732

DEVELOPER
MG LAND HOLDINGS 1, LLC
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COLUMBIA, MARYLAND 21044
443-324-4732

DEVELOPER'S / BUILDER'S CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIAL WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

[Signature]
NAME DATE **5/15/17**

F-16-123

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

A. Soil Preparation

- 1. Temporary Stabilization
a. Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment...
b. Apply fertilizer and lime as prescribed on the plans.
c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

B. Topsoiling

- 1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation...
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications...
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

C. Soil Amendments (Fertilizer and Lime Specifications)

- 1. Soil tests must be performed to determine the exact rates and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more...
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application...
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding)...
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

- 1. The application of seed and mulch to establish vegetative cover.
2. To protect disturbed soils from erosion during and after the construction.
3. To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

A. Seeding

- 1. Specifications
a. All seed must meet the requirements of the Maryland State Seed Law...
b. Multiple cover must be applied between the fall and spring seeding dates only if the ground is frozen.
c. Seed must be applied between the fall and spring seeding dates only if the ground is frozen.
d. Application
i. Apply seed in two directions, perpendicular to each other...
ii. Drill or Outfitter Seeding: Mechanized seeders that apply and cover seed with soil.

B. Mulching

- 1. Mulch Materials (in order of preference)
a. Straw consisting of clean straw, clean, dry, or barley and reasonably bright in color...
b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into uniform fibrous physical blocks.

DEVELOPER'S CERTIFICATE

"I/we certify that all development and construction will be done according to this plan for sediment and erosion control..."

- 1. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection...
2. Application
a. Apply mulch to all seeded areas immediately after seeding.
b. When straw mulch is used, spread R or O seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches.

C. Anchoring

- 1. Perform mulch anchoring immediately following application of mulch to minimize loss of wind or water...
2. Synthetic binders such as Acrylic ULR (Agra-Tack), DCA-70, Petrolac, Terra Tex II, Terra-Tack AR or other approved equal may be used.

TEMPORARY SEEDING NOTES (B-4-4)

- 1. To stabilize disturbed soils with vegetation for up to 6 months.
2. To use fast growing vegetation that provides cover on disturbed soils.
3. Exposed soils where ground cover is needed for a period of 6 months or less.
4. Conditions Where Practice Applies
Exposed soils where ground cover is needed for a period of 6 months or less.

B-4-4 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS

- 1. A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

PERMANENT SEEDING NOTES (B-4-5)

- 1. General Mixtures
a. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches...
b. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition...
c. For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil testing agency.

Table with columns: Species, Application Rate (lb/ac), Seeding Dates, Seeding Depths, Fertilizer Rate (10-20-20), Lime Rate (90 lb/1000 sq ft). Rows include Fescue, Bluegrass, and other species.

- 1. Kentucky Bluegrass/Full Sun Mixture: For use in areas that receive intensive management...
2. Kentucky Bluegrass/Perennial Ryegrass Mixture: For use in full sun areas where rapid establishment is necessary...
3. Tall Fescue/Cultivar Mixture: For use in drought prone areas and/or for areas receiving low to medium management.

PERMANENT SEEDING SUMMARY

Table with columns: Hardness Zone, Species, Application Rate, Seeding Dates, Seeding Depths, Fertilizer Rate, Lime Rate.

ENGINEER'S CERTIFICATE

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions..."

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND...

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

- 1. General Specifications
a. Sod must be machine cut at a uniform soil thickness to 3/8 inch, plus or minus 1/16 inch, at the time of cutting.
b. Sod must be harvested or transplanted within a period of 36 hours.
2. Sod Installation
a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREAS

- 1. A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

- 1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1.

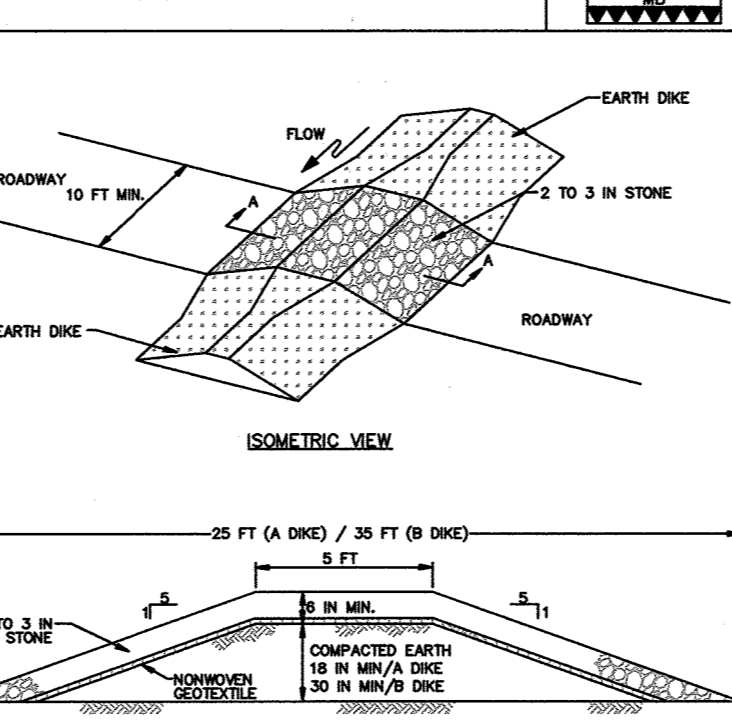
HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

- 1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-313-1895 before the start of construction.
2. Upon completion of the installation of perimeter erosion and sediment controls, and before proceeding with any other earth disturbance activities...
3. Following initial soil disturbance or re-disturbance, perimeter stabilization (i.e., 3 calendar days for 1:1 slopes, 7 calendar days for 2:1 slopes, 14 calendar days for 3:1 slopes) must be completed.

- 1. Erosion and sediment control practices must be maintained when applying topsoil.
2. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches.
3. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition.

- 1. Erosion and sediment control practices must be maintained when applying topsoil.
2. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches.
3. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition.

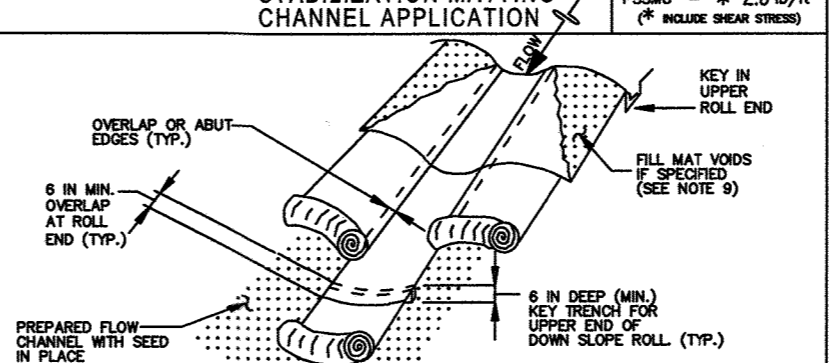
DETAIL C-8 MOUNTABLE BERM



CONSTRUCTION SPECIFICATIONS

- 1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.

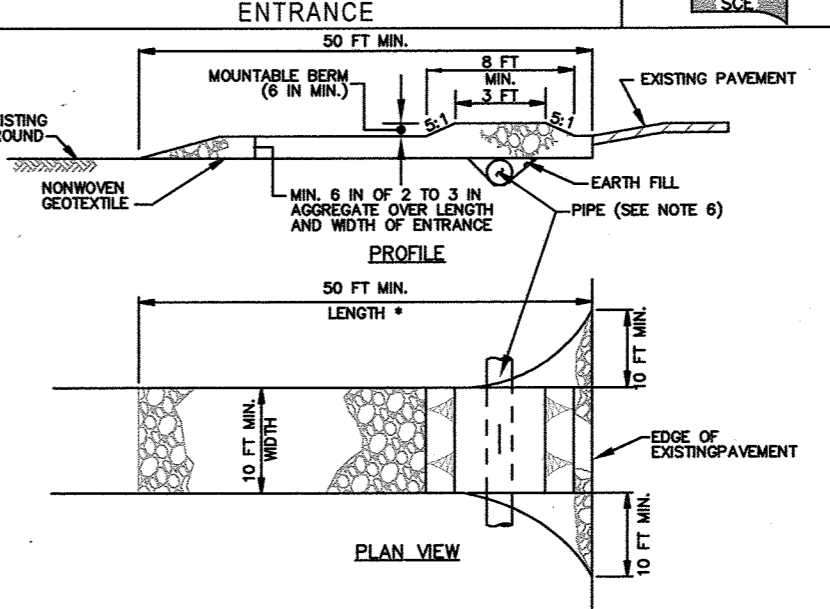
DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION



CONSTRUCTION SPECIFICATIONS

- 1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. PLACE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS OVER THE EARTH MOUND PRIOR TO INSTALLING MATTING.
3. SECURE MATTING USING STAPLES OR METAL RINGS TO BE PLACED AT 4' TO 6' ON CENTER.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE



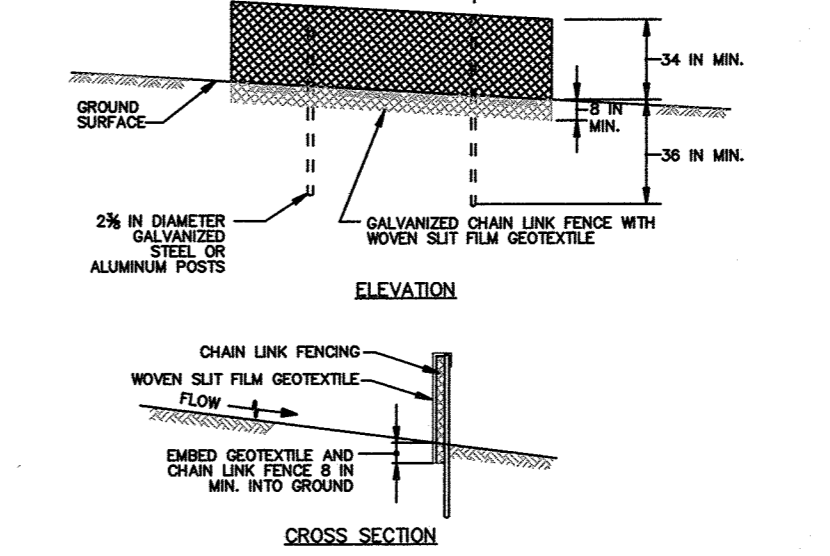
CONSTRUCTION SPECIFICATIONS

- 1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SOIL. MINIMUM LENGTH OF 50 FEET (150 FEET FOR SINGLE TURNING RADIUS). USE MINIMUM WIDTH OF 10 FEET.
2. PREPARE SURFACE MATERIAL FROM THE ENTRANCE TO THE SOIL UNDER THE ENTRANCE. MAINTAINING PROPER DRAINAGE. PROTECT PILE INSTALLED THROUGH THE SOIL WITH A MOUNTABLE BERM.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

Table with columns: U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011, MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION.

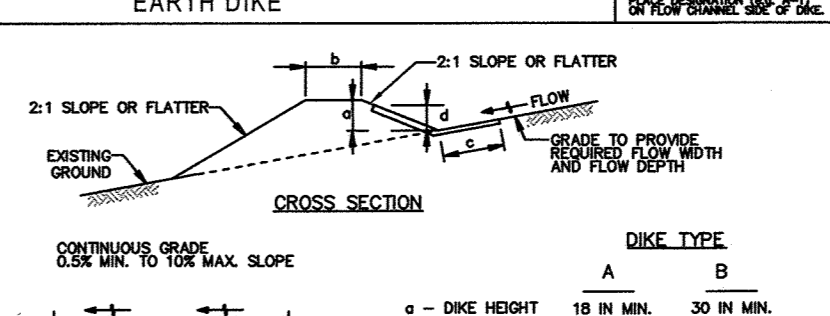
DETAIL E-3 SUPER SILT FENCE



CONSTRUCTION SPECIFICATIONS

- 1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 48 INCH WALL THICKNESS AND 96 INCH LENGTH SPACED NO MORE THAN 30 FEET APART ALONG THE LENGTH AND WIDTH OF THE SUPER SILT FENCE.
2. FASTEN WOVEN SILT FIBER GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS SECURELY TO THE SURFACE OF THE DISTURBED SOIL.
3. EXTEND BOTH ENDS OF THE GEOTEXTILE A MINIMUM OF FIVE HORIZONTAL FEET UPLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

DETAIL C-1 EARTH DIKE



CONSTRUCTION SPECIFICATIONS

- 1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STAMPS, OBSTRUCTIONS, AND OTHER OBSTRUCTIONABLE MATERIALS SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EXISTING DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROTECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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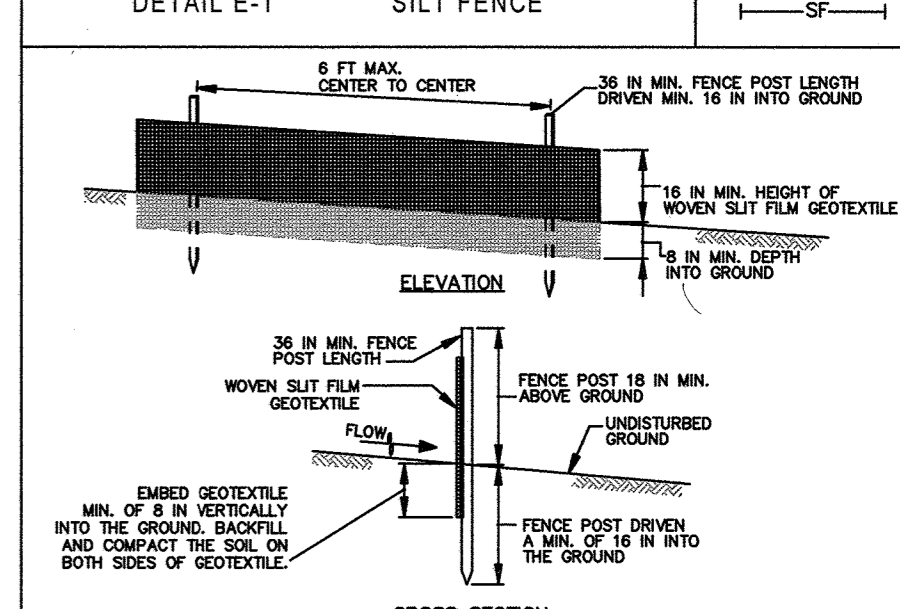
SEQUENCE OF CONSTRUCTION

- 1. OBTAIN A GRADING PERMIT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR. (2 WEEKS)
2. NOTIFY 'THIS UTILITY' AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777.
3. OBTAIN THE HOWARD COUNTY PERMIT TO CONSTRUCT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR AT LEAST 24 HOURS BEFORE STARTING WORK.
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE. INSTALL STABLE SUPER SILT FENCE, EARTH DIKE, AND SEDIMENT TRAP. (1 DAY)
5. INSTALL STRAIN PUMP APRON (PER DETAIL L-10 IN SHEET G) FOR REPAIR TO EXISTING STRUCTURE AND COLLECT PAVEMENT DEBRIS AND DIRT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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DETAIL E-1 SILT FENCE



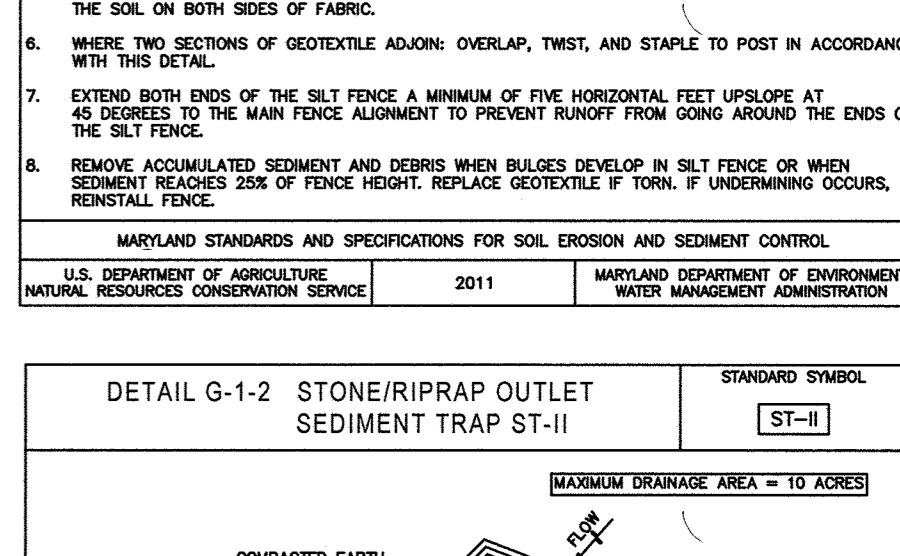
CONSTRUCTION SPECIFICATIONS

- 1. USE WOOD POSTS 1 1/2 x 1 1/2 x 6 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO STEEL POSTS USE STANDARD 'T' OR 'U' SECTION STEEL POSTS WEARING NO LESS THAN 1 POUND PER LINEAL FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 18 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SILT FIBER GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II



CONSTRUCTION SPECIFICATIONS

- 1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 48 INCH WALL THICKNESS AND 96 INCH LENGTH SPACED NO MORE THAN 30 FEET APART ALONG THE LENGTH AND WIDTH OF THE SUPER SILT FENCE.
2. FASTEN WOVEN SILT FIBER GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS SECURELY TO THE SURFACE OF THE DISTURBED SOIL.
3. EXTEND BOTH ENDS OF THE GEOTEXTILE A MINIMUM OF FIVE HORIZONTAL FEET UPLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

Table with columns: U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011, MARYLAND DEPARTMENT OF ENVIRONMENT AND WATER MANAGEMENT ADMINISTRATION.

SEDIMENT & EROSION CONTROL NOTES & DETAILS

TEN OAKS FARM LOTS 1 THRU 6 ZONED RR-DEO FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND SCALE: AS SHOWN DATE: MARCH, 2017 SHEET 5 OF 5

1. OBTAIN A GRADING PERMIT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR. (2 WEEKS)
2. NOTIFY 'THIS UTILITY' AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777.
3. OBTAIN THE HOWARD COUNTY PERMIT TO CONSTRUCT AND HOLD PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTOR AT LEAST 24 HOURS BEFORE STARTING WORK.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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